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SOME NEW SOUTH AFRICAN MOSSES.

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(Plates I. II.)

These new mosses have been collected amongst others by me from time to time, and the number is now sufficiently large to justify me in giving descriptions and illustrations of them. I am greatly indebted to H. N. Dixon, Esq., C. Wright, Esq., of Kew, and Professor Brotherus, of Finland, for their kindness in helping me with the identification and naming of the species described. I hope to bring out very soon a preliminary list of all the mosses already recorded from South Africa.

FISSIDENS WAGERI, Dixon. (Plate I. A.)

Caespitosus, non magnus, nullis ramis. Caulis circa 1 mm. longus cum 5-7 paribus foliorum. Folia superiora longiora et maiora, inferiora sensim breviora et minora, vel lanceolata vel subspathulata sine limbo, apice acuto, paululum asymmetrica, sine nervo sed cellulis ab inferiore parte nonnunquam ad centrum convergentibus; cellulis plus minusve regularibus 100-120 μ . longis, 17-20 μ . latis acutis chlorophyllosis, usque ad marginem paribus, margine integerrimo. Lamina secundaria



angusta sed a basi dimidia parte folii latior. Pedunculus terminalis interdum duplex, longior, subruher. Theca incurva symmetricalis non magna, brevis, ovalis, operculo conico rostro brevi. Peristomium dentibus rigidis longioribus sine papillis. Sporibus rotundis 12–15 μ . diametro.

Habit.—Sparse in tumulis protectis. Umkomaas, Natal.

This moss is remarkable for the leaves having no nerve, so that the theory that the sheathing lamina is an outgrowth from the nerve cannot hold in this case.

AMBLYSTEGIUM FILIFORME, Wager and Wright. (Plate I. B.)

Herbae dense cristatae, ramis irregularibus longis tenuibus filiformibus. Folia crebra parva, sicca imbricata, humida patentia, circa 1 mm. longa, ovata paululum asymmetrica, apice acuto sine acumine, margine paululum denticulata. Cellulis brevibus irregularibus rotundatis, fere pari longitudine et latitudine ad basim uniformioribus, sine auriculis, nervo robusto infra apicem desinente. Perichaetia distincta multo longiora, punctis longis acuminatis cellulis regularioribus longioribus quam latis. Pedunculus 12–18 longus, fuscus. Peristomium breve a margine interiore ciliatum. Sporibus regularibus circa 20 μ . diametro.

Habit.—In lapidibus, &c. Van Reenen, Natal.

Differs from *Amblystegium radiale* in the leaves, being more shortly pointed, not acuminate, and in the shorter cells.

Fruit of LEUCOLOMA WOODII, Reh. and MacO. (Plate I. C.)

This moss was named and placed in a new genus from foliage specimens only. The fruit has now been discovered, and the following is a description of it.

Dioica. Pedunculus erectus brevis 2–3 mm. longus plerumque duplex. Theca lateralis erecta symmetricalis, cylindricalis, circa 1 mm. longa, ore sicco non contracto; peristomio brevissimo, 15 μ . longo, uno cum ordine dentium duplicum brevium prope levium ab interiore latere oris. Peristomium decidens ut theca appareat fere sine peristomio.

Fruit of L. REHMANNI, C.M.

Pedunculus longior. Theca longior angustiorque; ore constrictiore cum annulo distincto levique; peristomio rudimentiore cum uno ordine dentium brevium latorumque.

The male plants are more branched and tufted, the antheridia being terminal. The archigonia are lateral on less branched specimens.

Both fruiting plants were found at Woodbush, Transvaal.

PHYSCOMITRIUM SUCCULEATUM, Wager and Wright. (Plate I. D.)

Caespitosum, caulis erectus parvus, nullis ramis; folia patentia sicca contorta, $1\frac{1}{2}$ –2 mm. longa prope aequae lata, a parte superiore paulo latiora apice acuto, margine integerrimo, nervo robusto ad apicem vix producto. Cellulis paulo remissis, hexo-rectangularibus, a basi magis uniformibus, circa 40–50 mu. longis, chlorophyllosis. Pedunculus brevis 5–7 mm. longus. Theca longa pyriformis a basi fastigata, cervice vix distincta, ore parvo; operculo prope plano, cellulis in rectis lineis e centro ad marginem. Peristomium praesens sed rudimentarium, 16 dentibus ab interiore parte oris 6–8 mu. longis nulla membrana distincta; calyptra pallide flava, tumida, rostro longo acuto totam thecam includens integra praeter unam fissuram ad basim. Sporis irregularibus, circa 20 mu. diametro.

Habit.—Tumulis soloque laxo.

This moss is distinguished by the acute leaves with fairly regular cells by the unbroken calyptra, the rudimentary peristome. It is evidently closely allied to *P. Maclei*, Reh.

HYMENOSTOMUM OPACUM, Wager and Dixon. (Plate I. E.)

Caespitosum crispatum, pallide viride, circa 12–15 mm. altum. Caulis erectus paucis ramis. Folia patentia, sicca contorta, 2–3 mm. longa, angusto-oblonga, lanceolata, apice obtuso, margine integro planoque, nervo robusto in punctum acutum validumque excurrente. Cellulis parvis quadratis densis valde opacis, cellulis mutatis sensim basim in cellules mergentibus longiore rectangulares translucetes cellulae superiores subpapillosae. Pedunculus circa 12 mm. longa fulva. Theca oblonga, cylindrica, symmetrica, fulva, operculo breviter conico obliquo ore latiore, sine peristomio vel membrana obtigente. Sporis laevibus circa 20 mu. diametro.

Habit.—Humidis tumulis. Van Reenen, Natal.

OEDIPODIUM AUSTRALE, Wager and Dixon. (Plate I. F.)

Herbae parvae breves paululum cristatae clare virides, rhizomate repente ramosoque. Folia patentia sicca valde contracta pleraque ad apicem in formam calicis aggregata, 3–5 mm. longa, concava, lata, obovata subspathulataque basim versus paululum angustata, nervo angusto ad apicem producto in validum mucronem excurrente, margine integerrimo. Cellulis amplioribus irregulariter polygonalibus, 50–60 mu. longis, 30–50 mu. latis ad apicem marginemque paulo minoribus, basim versus rectangularioribus. Gemmae in calice terminali. Theca ignota.

Gemmae copiose laete virides magnae ad 300 mu. latae, orbiculares, lenticuliformes, in calicibus terminalibus aggregatae.

Habit.—Siccis tumulis. Umkomaas; Waterval; Pretoria.

This interesting moss differs from *Oedipodium Griffithianum*, chiefly in the shorter stature, the leaves slightly smaller with smaller areolation, midrib excurrent in strong mucro and leaf base wide without fringe of hairs or cilia. The gemmae are never axillary, but always in terminal cups, and the gemmae are found on nearly every plant.

TREMATODON AFRICANUS, Wager and Dixon. (Plate I. G.)

Herbae cristatae subflavae virides; caulis erectus circa 10–15 mm. altus vix ramosus, folia dispersa erecta interdum flexa angusta lanceolata, fastigato subulato apice nervo distincto angusto vix ad apicem producto, margine integro vel ad apicem indistincte denticulato, cellulis plus minusve rectangularibus a basi laxis ab apice et margine magis densis. Perichaetia vix dissimilia foliis caulibus. Pedunculus 12–18 mm. longus flavus. Theca arcuata, cervice plerumque longiore quam theca ipsa sensim in pedunculum fastigata, valde strumosa flava cylindrica, paulum flexa, operculo rostro longo obliquo; peristomium dentibus 16 a basi paululum conjunctis, irregulariter perforatis vel divisis. Sporibus magnis asperis, circa 20 mu. diametro.

Habit.—Humido solo argillaceo, semper in ripis fluvii. Natal and Tzaneen, Transvaal.

This moss appears to be closely allied to *T. torile*, but it is more straw-coloured, of a much greater stature, the struma is more pronounced with a longer neck, and the peristome is longer.

WEISIA (GYMNOSTOMUM) GRACILIS, Wager and Dixon. (Plate II. A.)

Herbae cristatae pallide virides. Caulis brevis sine ramis. Folia patentia sicca crispissima sed vix contorta, parva, circa 2 mm. longa, basi latiore amplexa et ad apicem obtusum fastigata, margine integro a parte superiore paululum papilloso, nervo robusto infra apicem evanido, cellulis minoribus, 10–12 mu. longis plus minusve quadratis opacis et paulo rectangularioribus, sine papillis. Perichaetia paulo longiora et obtusiora. Theca erecta, symmetrica, subglobosa subrubri-fusca sine peristomio, ore lato, operculo conico rostro longiore et paululum obliquo facile decidente. Pedunculus subrubri-fuscus plerumque contortus saepe sinuosus. Sporibus regularibus circa 20 mu. diametro.

Habit.—Tumulis humidis argillaceisque.

This moss appears to be distinguished by the cells being nearly uniform to base, the long seta and short gymnostomus capsule with wide mouth.

SEMATOPHYLLUM WAGERI, Wright. (Plate II. B.)

Subflave viride cristatum. Caulis brevis circa 1 cm. longus, paucis ramis. Folia paululum secunda, oblongo-lanceolata, $1-1\frac{1}{4}$ mm. longa, apice acuto, basim versus paulo angustiora, margin integerrimo, concaviores, sine costa. Cellulis longis angustis chlorophyllosis, ab inferiore parte circa 80 mu. longis ad apicem brevioribus (circa 40 mu.), terminis acutis, auriculis distinctis cellulis viridibus. Pedunculus circa 12 mm. longus, subruher, ad apicem curvatus. Theca curvata, parva, circa $1-1\frac{1}{2}$ mm. longa, subrubri-fulva, ore sicca contracto. Peristomium duplex, subflavum circa 280 mu. longum, peristomium exterius dentibus latis acutis vix papillosis sed cum duobus ordinibus parvorum laminarum ab inferiore parte et a margine, peristomium interius pari longitudine sed angustum leveque sine laminis; operculo rostro longiore obliquo. Sporid laevibus irregularibus, 12-15 mu. diametro.

Habit.—Tumulis humidis. Natal.

ISOPTERYGIUM PUNCTULATUM, Brotherus and Wager. (Plate II. C.)

Caespitosum dense cristatum. Caulis repens robustior, ramis irregularibus ad apicem saepe attenuatis, ab inferiore parte radicalis copiosis. Folia sicca contorta, valde complanata $1\frac{1}{4}-1\frac{1}{2}$ mm. longa, ovata, margine integerrimo ad apicem acutum fastigata, paululum asymmetrica, ad basim angustata non decurrentia, sine nervo. Cellulis valde longis angustisque 100-150 mu. longis, 6-10 mu. latis, plerumque acutis ad basim paulo rectangularioribus et latoribus, chlorophyllosis, sine auriculis. Perichae-talia apice longiore, plus minusve pellucida. Pedunculus 10-15 mm. longus rectus, palum contortus. Theca curvata cylindrata, circa $1\frac{1}{2}$ mm. longa, levis. Peristomium robustum subrubri-fulvum, dentibus latoribus circa 250 mu. longis vectibus indistinctis sine ciliis; operculo paulum longo conico, obtuso apice ore contractiore. Sporid levibus viridibus, 12-15 mu. diametro.

Habit.—Tumulis siccis protectisque. Near Rustenburg.

This moss is characterized by its leaves having no midrib and no auricles, the length of the cells and the smooth capsule.

ANOETANGIUM ASSIMILIS, Brotherus and Wager. (Plate II. D.)

Herbae dense cristatae pervirides. Caulis gracilis, 7-10 mm. altus parce ramosus laxo tomento ab inferiore parte. Folia sicca contorta, parva, triangularia, ad basim vix angustata $\frac{3}{4}-1$ mm. longa, fastigata vix carinata, apice acuto, margine integro sed papillis cellularum paululum dentatis, nervo robusto ad apicem evanido. Cellulis papillis, obscuris, opacis, irregularibus, 8-10 mu. longis latitudine fere pari, paulo maioribus

et rectangularioribus, chlorophyllosis, cellula apicale distincta. Perichæetalia vix dissimilia. Pedunculus brevis pallidus, lateralis, 5–8 mm. longus, erectus. Theca erecta, symmetrica, brevis, circa 1 mm. longa, ovalis, ore lato, cervice non distincta, sine peristomio, operculo breviconico, rostro obtuso paululum obliquo. Sporis parvis.

Habit.—Tumulis protectis. Natal.

Distinguished by its smaller stature, shorter and less pointed leaves, short capsule without neck, and perichaetial bracts not distinct.

WEISIA VIRIDULA, var. *LONGIFOLIA*, Brotherus and Wager. (Plate II. E.)

Herbae dense cristatae pallides virides. Caulis erectus parce ramosus. Folia sicca valde contorta crispaeque, longa angusta fastigata apice acuto sine mucrone, $1\frac{1}{2}$ – $2\frac{1}{4}$ mm. longa, margine integro, a superiore parte incurva ad basim paulo angustiora, nervo robusto ad apicem producto. Cellulis minute quadratis opacis papillosis, ad basim rectangularibus hyalinis cum densis muris. Pedunculus longus 10–15 mm. pallidus rectus. Theca erecta symmetrica ovalis $1\frac{1}{4}$ – $1\frac{1}{2}$ mm. longa, ab ore vix contracto, ore membrana hyalina cooperto. Peristomium robustum dentibus variis in una serie, 20–30 mu. longis aurantiis. Operculum breve conicum, rostro paululum obliquo. Sporis fuscis paulum asperis, 15–18 mu. diametro.

Habit.—Humidis arenosis locis. Table Mountain top.

Distinguished by its pointed not mucronate leaves, long seta, and distinct peristome.

